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First Named Inventor	Charles William Norman
Art Unit	2665
Examiner Name	Steven HD Nguyen
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ENCLOSURES (check all that apply)

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment / Reply
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  - ☐ Affidavits/declaration(s)
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

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Date	12/8/2005	Reg. No.	37,936

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Signature	Jamie Cameron		
Typed or printed name	Jamie Cameron	Date	12/8/2005

PATENT

Practitioner's Docket No. 1226a

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Charles William Norman
Application No.: 09/899,583
Filed: 07/06/01

Group No.: 2665
Examiner: Steven H. D. Nguyen

For: Method and System for Transporting a Secondary Communication Signal with a Primary Communication Signal

Mailstop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Appeal Brief

Real Party in Interest

Sprint Communications Company, L.P. is the real party in interest.

Related Appeals and Interferences

None.

Status of Claims

Claims 1-34 have been cancelled. Claims 35-46 are pending under a final rejection. Claims 35-46 are on appeal.

Status of Amendments

None.

Summary of the Claimed Subject Matter

Each independent claim is properly summarized below, but before presenting the summarized subject matter, it is helpful to *briefly* introduce some well known concepts and a problem solved by the claimed subject matter.

In a Synchronous Optical Network (SONET), a "path" defines an end-to-end connection from the source of the SONET signal to the destination of the SONET signal. The path is comprised of a series of "lines" that typically run between SONET Add/Drop Multiplexers (ADMs). Each line is comprised of a series of "sections", where the sections of a line are typically separated by amplifiers. Figure 1 below illustrates a simple SONET path with lines and sections.

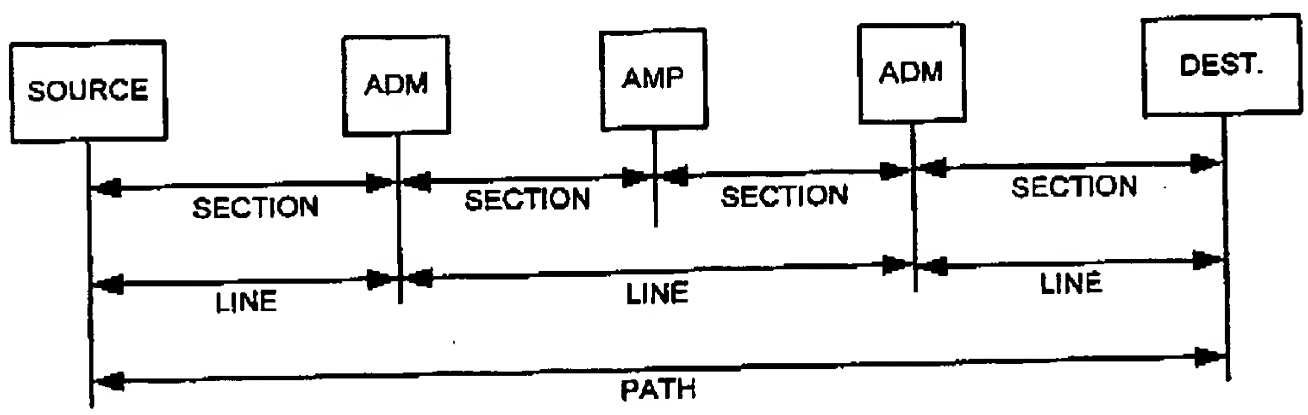

FIGURE 1

A SONET signal has an overhead and a payload. (See the application page 4, line 27 to page 5, line 8). The overhead includes Section Overhead (SOH) and Line Overhead (LOH). The payload section includes Path Overhead (POH) and user information. Figure 2 below illustrates a typical SONET signal having the LOH and SOH in the overhead and the POH in the payload.

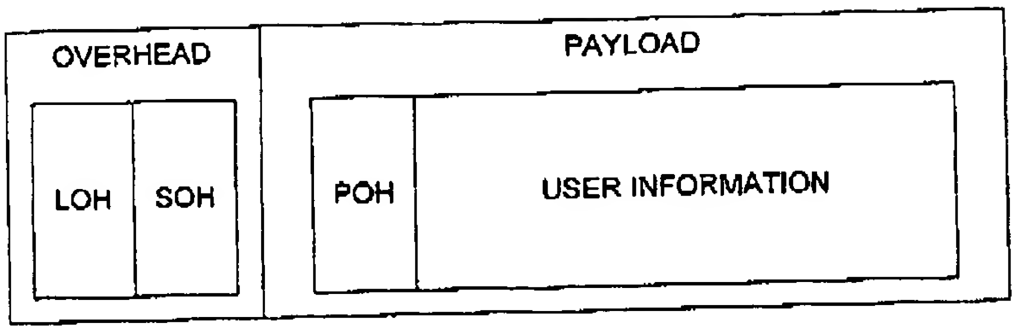

FIGURE 2

A key aspect of the invention is overhead "termination." In SONET, a device "terminates" overhead by: 1) retrieving the overhead data from the overhead data fields, 2) processing the overhead data to facilitate network operations, 3) generating new overhead data, and 4) loading the new overhead data into the overhead data fields. Thus, the "termination" of overhead entails the replacement of old overhead data with new overhead data. The signal source initially generates the POH, LOH, and SOH. At the end of each section, the receiving device terminates the SOH. At the end of each line, the receiving device terminates the LOH. ***Note that the LOH and SOH data are repeatedly replaced through the overhead termination process during the transit of the SONET signal.*** The POH data remains the same from end-to-end.

The claimed subject matter solves a problem that occurs when a first communication network uses a second communication network to transport a SONET signal. (See the application page 5, line 9 to page 6, line 7). For example in Figure 1 above, consider that the source and destination are in a different network from the ADMs and the amp. When the first ADM receives a SONET signal from the source, the first ADM terminates the SOH and the LOH. The amp terminates the SOH, and the second ADM terminates the SOH and the LOH. ***Note that the SOH and LOH in the SONET signal transmitted by the source will be different from the SOH and LOH in the SONET signal received by the destination because of the intermediate terminations of the SOH and LOH.***

The problem occurs if the first communication network wants their SOH and LOH to remain the same. In other words, the first communication network may want the same signal that is transferred by the source to be delivered to the destination – including the same LOH and SOH. ***In the prior art, this would have required running an optical***

fiber directly between the source and destination to avoid any SOH and LOH termination points. Unfortunately, running the direct optical fiber is not always practical.

Claim 35

Independent claim 35 recites a method of operating a Synchronous Optical Network (SONET) system having a first adaptor assembly 108 and a second adaptor assembly 110. (See the application page 7, line 5 to page 12, line 18). The first adaptor assembly 108 receives a first SONET signal having a payload, and having Section Overhead information (SOH) and Line Overhead information (LOH). (See the application page 7, lines 6-9; page 9, line 25 to page 10, line 8; and page 10, lines 26-29). The first adaptor assembly 108 ***terminates*** the received SOH and LOH, and transfers the payload and the ***terminated*** SOH and LOH. (See the application page 7, lines 17-27; page 10, lines 13-19; and page 11, lines 20-29). Although not claimed, note that the first adaptor assembly would typically transfer new SOH and LOH information in place of the terminated overhead in the standard manner – the terminated overhead is transferred in addition to the new overhead.

The second adaptor assembly 110 receives the payload and the ***terminated*** SOH and LOH. (See the application page 7, lines 19-27; page 12, lines 25-28 – note that assemblies 108 and 110 operate in a similar fashion, and the operation of the "second" assembly is described with respect to assembly 108 in some portions of the text). The second adaptor assembly 110 generates and transfers a second SONET signal having the payload, and having the ***terminated*** SOH and LOH. (See the application page 7, line 24 to page 8, line 6; and page 13, line 7, to page 15, line 10). Thus, the second adaptor 110 assembly can transfer a SONET signal having the original SOH and LOH that was received by the first adaptor assembly 108, even though the original SOH and LOH were terminated by the first adaptor assembly 108.

Advantageously, the destination 112 receives the same SONET signal (the same SOH, LOH, and payload) that was transferred by the source 106, even though the SOH and LOH were terminated in transit.

Claim 38

Independent claim 38 recites a Synchronous Optical Network (SONET) system having a first adaptor assembly 108 and a second adaptor assembly 110. (See the application page 7, line 5 to page 12, line 18). The first adaptor assembly 108 receives a first SONET signal having a payload, and having Section Overhead information (SOH) and Line Overhead information (LOH). (See the application page 7, lines 6-9; page 9, line 25 to page 10, line 8; and page 10, lines 26-29). The first adaptor assembly 108 ***terminates*** the received SOH and LOH, and transfers the payload and the ***terminated*** SOH and LOH. (See the application page 7, lines 17-27; page 10, lines 13-19; and page 11, lines 20-29). Although not claimed, note that the first adaptor assembly would typically transfer new SOH and LOH information in place of the terminated overhead in the standard manner – the terminated overhead is transferred in addition to the new overhead.

The second adaptor assembly 110 receives the payload and the ***terminated*** SOH and LOH. (See the application page 7, lines 19-27; page 12, lines 25-28 -- note that assemblies 108 and 110 operate in a similar fashion, and the operation of the "second" assembly is described with respect to assembly 108 in some portions of the text). The second adaptor assembly 110 generates and transfers a second SONET signal having the payload, and having the ***terminated*** SOH and LOH. (See the application page 7, line 24 to page 8, line 6; and page 13, line 7, to page 15, line 10). Thus, the second adaptor 110 assembly can transfer a SONET signal having the original SOH and LOH that was received by the first adaptor assembly 108, even though the original SOH and LOH was terminated by the first adaptor assembly 108.

Advantageously, the destination 112 receives the same SONET signal (the same SOH, LOH, and payload) that was transferred by the source 106, even though the SOH and LOH were terminated in transit.

Claim 41

Independent claim 41 recites a Synchronous Digital Hierarchy (SDH) system having a first adaptor assembly 108 and a second adaptor assembly 110. (See the application page 7, line 5 to page 12, line 18). Other than this change in terminology, the invention effectively operates the same for SDH as it does for SONET where the SONET LOH represents the SDH Multiplexer Section Overhead (MSOH), and the SONET SOH represents the SDH Regenerator Section Overhead (RSOH). (See the application page 9, lines 12-24). The first adaptor assembly 108 receives a first SDH signal having a payload, and having Regenerator Section Overhead (RSOH) and Multiplexer Section Overhead (MSOH). (See the application page 7, lines 6-9; page 9, line 12 to page 10, line 8; and page 10, lines 26-29). The first adaptor assembly 108 ***terminates*** the received RSOH and MSOH, and transfers the payload and the ***terminated*** RSOH and MSOH. (See the application page 7, lines 17-27; page 9, lines 12-24; page 10, lines 13-19; and page 11, lines 20-29). Although not claimed, note that the first adaptor assembly would typically transfer new RSOH and MSOH information in place of the terminated overhead in the standard manner – the terminated overhead is transferred in addition to the new overhead.

The second adaptor assembly 110 receives the payload and the ***terminated*** RSOH and MSOH. (See the application page 7, lines 19-27; page 12, lines 25-28 -- note that assemblies 108 and 110 operate in a similar fashion, and the operation of the "second" assembly is described with respect to assembly 108 in some portions of the text). The second adaptor assembly 110 generates and transfers a second SDH signal having the payload, and having the ***terminated*** RSOH and MSOH. (See the application page 7, line 24 to page 8, line 6; page 9, lines 12-24; and page 13, line 7, to page 15, line 10). Thus, the second adaptor 110 assembly can transfer an SDH signal having the original RSOH and MSOH that was received by the first adaptor assembly 108, even though the original RSOH and MSOH were terminated by the first adaptor assembly 108.

Advantageously, the destination 112 receives the same SDH signal (the same RSOH, MSOH, and payload) that was transferred by the source 106, even though the RSOH and MSOH were terminated in transit.

Claim 44

Independent claim 44 recites an SDH system having a first adaptor assembly 108 and a second adaptor assembly 110. (See the application page 7, line 5 to page 12, line 18). Other than this change in terminology, the invention effectively operates the same for SDH as it does for SONET where the SONET LOH represents the SDH Multiplexer Section Overhead (MSOH), and the SONET SOH represents the SDH Regenerator Section Overhead (RSOH). (See the application page 9, lines 12-24). The first adaptor assembly 108 receives a first SDH signal having a payload, and having Regenerator Section Overhead (RSOH) and Multiplexer Section Overhead (MSOH). (See the application page 7, lines 6-9; page 9, line 12 to page 10, line 8; and page 10, lines 26-29). The first adaptor assembly 108 ***terminates*** the received RSOH and MSOH, and transfers the payload and the ***terminated*** RSOH and MSOH. (See the application page 7, lines 17-27; page 9, lines 12-24; page 10, lines 13-19; and page 11, lines 20-29). Although not claimed, note that the first adaptor assembly would typically transfer new RSOH and MSOH information in place of the terminated overhead in the standard manner – the terminated overhead is transferred in addition to the new overhead.

The second adaptor assembly 110 receives the payload and the ***terminated*** RSOH and MSOH. (See the application page 7, lines 19-27; page 12, lines 25-28 -- note that assemblies 108 and 110 operate in a similar fashion, and the operation of the "second" assembly is described with respect to assembly 108 in some portions of the text). The second adaptor assembly 110 generates and transfers a second SDH signal having the payload, and having the ***terminated*** RSOH and MSOH. (See the application page 7, line 24 to page 8, line 6; page 9, lines 12-24; and page 13, line 7, to page 15, line 10). Thus, the second adaptor 110 assembly can transfer an SDH signal having the original RSOH and MSOH that was received by the first adaptor assembly 108, even though the original RSOH and MSOH were terminated by the first adaptor assembly 108.

Advantageously, the destination 112 receives the same SDH signal (the same RSOH, MSOH, and payload) that was transferred by the source 106, even though the RSOH and MSOH were terminated in transit.

Grounds of Rejection to be Reviewed on Appeal

1. Claims 41-42 and 44-45 are rejected under 35 U.S.C. 102(e) over U.S. patent 5,600,648 (Furuta).

2. Claims 35-40, 43, and 46 are rejected under 35 U.S.C. 103(a) over U.S. patent 5,600,648 (Furuta) in view of U.S. patent 5,416,768 (Jahromi).

Argument

1. Claims 41-42 and 44-45 are rejected under 35 U.S.C. 102(e) over U.S. patent 5,600,648 (Furuta).

Claims 41-42 and 44-45 require that a first adaptor assembly receive an SDH signal and terminate the RSOH and MSOH information in the SDH signal. The first adaptor assembly transfers the payload and the ***terminated*** RSOH and MSOH. Note that the first adaptor assembly would also transfer new RSOH and MSOH information in place of the terminated overhead in the standard manner – the terminated overhead is transferred in addition to the new overhead. A second adaptor assembly receives the payload and the ***terminated*** RSOH and MSOH. The second adaptor assembly generates another SDH signal having the payload and the ***terminated*** RSOH and MSOH. Thus, the invention receives an original SDH signal, terminates overhead in the original SDH signal, and transfers the terminated overhead. If desired, the original SDH signal can be replicated downstream.

Furuta is directed to the location and inspection of the Path Overhead (POH). (See Furuta, column 1, lines 25-30). To inspect the POH, the Furuta system removes the RSOH/MSOH from the SDH signal, and after POH inspection, the Furuta system re-inserts the RSOH/MSOH back to the SDH signal. More specifically, interface 30a removes the RSOH/MSOH information from the SDH signal, and interface 30b adds the RSOH/MSOH information back to the SDH signal. (See Furuta, column 4, line 53 to column 5, line 24). In between interfaces 30a and 30b, the Furuta system locates and inspects the POH.

Furuta barely mentions RSOH or MSOH processing. Furuta does not disclose with clarity whether the RSOH and MSOH are terminated or not. Furuta appears to extract and re-insert the ***same*** overhead data – but this extraction and re-insertion of the same overhead data is ***not*** overhead termination. If the RSOH and MSOH are not terminated, then Furuta certainly does ***not*** teach the transfer of ***terminated*** RSOH and MSOH as required by the claims. If the RSOH and MSOH are terminated after extraction, then ***new*** RSOH and MSOH data would be inserted into the SDH signal in the conventional manner. This new overhead data has not yet been terminated. In either case, ***Furuta does not teach the transfer of terminated overhead data.***

In support of the rejection, the Examiner has cited the section of Furuta relating to Figure 19. The cited section simply does not teach what the Examiner asserts. The cited section certainly does not teach the ***termination*** of overhead data, and the transfer of the ***terminated*** overhead data for use in replicating an original SDH signal downstream. When overhead data is terminated, new overhead data takes its place. If the Furuta system terminates overhead data, then it would replace the terminated overhead data with new overhead data. If the Furuta system merely removes and reinserts the same overhead data, then the overhead data was never terminated. ***Furuta does not teach the transfer of terminated overhead data as claimed.***

2. Claims 35-40, 43, and 46 are rejected under 35 U.S.C. 103(a) over U.S. patent 5,600,648 (Furuta) in view of U.S. patent 5,416,768 (Jahromi).

Claims 35-40, 43, and 46 require that a first adaptor assembly receive a SONET signal and terminate the LOH and SOH information in the SONET signal. The first adaptor assembly transfers the payload and the ***terminated*** LOH and SOH. Note that the first adaptor assembly would also transfer new SOH and LOH information in place of the terminated overhead in the standard manner – the terminated overhead is transferred in addition to the new overhead. A second adaptor assembly receives the payload and the ***terminated*** LOH and SOH. The second adaptor assembly generates another SONET signal having the payload and the ***terminated*** LOH and SOH. Thus, the invention receives an original SONET signal, terminates overhead in the original SONET signal, and transfers the terminated overhead, so the original SONET signal can be replicated downstream.

Furuta is directed to the location and inspection of the Path Overhead (POH). (See Furuta, column 1, lines 25-30). To inspect the POH, the Furuta system removes the RSOH/MSOH from the SDH signal, and after POH inspection, the Furuta system re-inserts the RSOH/MSOH back to the SDH signal. More specifically, interface 30a removes the RSOH/MSOH information from the SDH signal, and interface 30b adds the RSOH/MSOH information back to the SDH signal. (See Furuta, column 4, line 53 to column 5, line 24). In between interfaces 30a and 30b, the Furuta system locates and inspects the POH.

Furuta barely mentions RSOH or MSOH processing. Furuta does not disclose with clarity whether the RSOH and MSOH are terminated or not. Furuta appears to extract and re-insert the ***same*** overhead data – but this extraction and re-insertion of the same overhead data is ***not*** overhead termination. If the RSOH and MSOH are not terminated, then Furuta certainly does ***not*** teach the transfer of ***terminated*** RSOH and MSOH as required by the claims. If the RSOH and MSOH are terminated after extraction, then ***new*** RSOH and MSOH data would be inserted into the SDH signal in the conventional manner. This new overhead data has not yet been terminated. In either case, ***Furuta does not teach the transfer of terminated overhead data***.

In support of the rejection, the Examiner has cited the section of Furuta relating to Figure 19. The cited section simply does not teach what the Examiner asserts. The cited section certainly does not teach the ***termination*** of overhead data, and the transfer of the ***terminated*** overhead data for use in replicating an original SDH signal downstream. When overhead data is terminated, new overhead data takes its place. If the Furuta system terminates overhead data, then it would replace the terminated overhead data with new overhead data. If the Furuta system merely removes and reinserts the same overhead data, then the overhead data was never terminated. ***Furuta does not teach the transfer of terminated overhead data as claimed.***

The Examiner cited Jahromi for its teaching of SONET and of two networks exchanging SONET signals. The Examiner did not assert that Jahromi taught the transfer of terminated overhead data for use in replicating an original SONET/SDH signal downstream. Jahromi does not teach the transfer of terminated overhead data for use in replicating an original SONET/SDH signal downstream. Thus, a combination of Furuta and Jahromi does not teach the transfer of terminated overhead data and the replication of an original SONET/SDH signal downstream.

Claims Appendix

The claims under appeal follow below:

35. A method of operating a Synchronous Optical Network (SONET) system, the method comprising:

receiving a first SONET signal into a first adaptor assembly, wherein the first SONET signal has section overhead information, line overhead information, and a payload;

in the first adaptor assembly, terminating the section overhead information and the line overhead information in the first SONET signal;

transferring the terminated section overhead information, the terminated line overhead information, and the payload from the first adaptor assembly;

receiving the terminated section overhead information, the terminated line overhead information, and the payload into a second adaptor assembly;

in the second adaptor assembly, generating a second SONET signal having the terminated section overhead information, the terminated line overhead information, and the payload; and

transferring the second SONET signal from the second adaptor assembly.

36. The method of claim 35 wherein transferring the terminated section overhead information and the terminated line overhead information from the first adaptor assembly comprises adding the terminated section overhead information and the terminated line overhead information to unused overhead space of a third SONET signal.

37. The method of claim 35 wherein receiving the first SONET signal comprises receiving the first SONET signal from a first carrier network into a second carrier network, and wherein transferring the second SONET signal comprises transferring the second SONET signal from the second carrier network to the first carrier network.

38. A Synchronous Optical Network (SONET) system comprising:

a first adaptor assembly configured to receive a first SONET signal having section overhead information, line overhead information, and a payload, to terminate the section overhead information and the line overhead information in the first SONET signal, and to transfer the terminated section overhead information, the terminated line overhead information, and the payload; and

a second adaptor assembly configured to receive the terminated section overhead information, the terminated line overhead information, and the payload, to generate a second SONET signal having the terminated section overhead information, the terminated line overhead information, and the payload, and to transfer the second SONET signal.

39. The SONET system of claim 38 wherein the first adapter assembly is configured to add the terminated section overhead information and the terminated line overhead information to unused overhead space of a third SONET signal.

40. The SONET system of claim 38 wherein the first adapter assembly receives the first SONET signal from a first carrier network into a second carrier network, and wherein the second adapter assembly transfers the second SONET signal from the second carrier network to the first carrier network.

41. A method of operating a Synchronous Digital Hierarchy (SDH) system, the method comprising:

receiving a first SDH signal into a first adaptor assembly, wherein the first SDH signal has regenerator section overhead information, multiplexer section overhead information, and a payload;

in the first adaptor assembly, terminating the regenerator section overhead information and the multiplexer section overhead information in the first SDH signal;

transferring the terminated regenerator section overhead information, the terminated multiplexer section overhead information, and the payload from the first adaptor assembly;

receiving the terminated regenerator section overhead information, the terminated multiplexer section overhead information, and the payload into a second adaptor assembly;

in the second adaptor assembly, generating a second SDH signal having the terminated regenerator section overhead information, the terminated multiplexer section overhead information, and the payload; and

transferring the second SDH signal from the second adaptor assembly.

42. The method of claim 41 wherein transferring the terminated regenerator section overhead information and the terminated multiplexer section overhead information comprises adding the terminated regenerator section overhead information and the terminated multiplexer section overhead information to unused overhead space of a third SDH signal.

43. The method of claim 41 wherein receiving the first SDH signal comprises receiving the first SDH signal from a first carrier network into a second carrier network, and wherein transferring the second SDH signal comprises transferring the second SDH signal from the second carrier network to the first carrier network.

44. A Synchronous Optical Network (SDH) system comprising:

a first adaptor assembly configured to receive a first SDH signal having regenerator section overhead information, multiplexer section overhead information, and a payload, to terminate the regenerator section overhead information and the multiplexer section overhead information in the first SDH signal, and to transfer the terminated regenerator section overhead information, the terminated multiplexer section overhead information, and the payload; and

a second adaptor assembly configured to receive the terminated regenerator section overhead information, the terminated multiplexer section overhead information, and the payload, to generate a second SDH signal having the terminated regenerator section overhead information, the terminated multiplexer section overhead information, and the payload, and to transfer the second SDH signal.

45. The SDH system of claim 44 wherein the first adapter assembly is configured to add the terminated regenerator section overhead information and the terminated multiplexer section overhead information to unused overhead space of a third SDH signal.

46. The SDH system of claim 44 wherein the first adapter assembly receives the first SDH signal from a first carrier network into a second carrier network, and wherein the second adapter assembly transfers the second SDH signal from the second carrier network to the first carrier network.

Evidence Appendix

None.

Related Proceedings Appendix

None.

SIGNATURE OF PRACTITIONER

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